DOCUMENT RESUME

ED 259 842 PS 015 228

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TITLE Children's Responses to Strangers: Effects of Family Status, Stress, and Mother-Child Interaction.
PUB DATE Apr 85
NOTE 39p.; Paper presented at the meeting of the Society for Research in Child Development (Toronto, Ontario, Canada, April 25-28, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Attachment Behavior; Comparative Analysis; Exploratory Behavior; Family Structure; Fathers; Fear; Mothers; *One Parent Family; *Parent Child Relationship; Parent Role; Sex Differences; *Social Development; *Stranger Reactions; *Stress Variables; Young Children
IDENTIFIERS Compliance (Behavior); *Social Interaction

ABSTRACT

Children's responses toward strangers, qualities of mother-child interaction, and maternal stresses were examined in 38 mother-child pairs, with children from single and two-parent families. Responses to female and male strangers were observed in a modified Strange Situation. Mother-child interaction was assessed with a modified version of Baumrind's cuisinaire rod task, and questionnaires measured maternal life stress. Results indicated that children from single-parent families were more fearful toward strangers than were children from two-parent families. Boys from both family groups were more affiliative towards strangers than were girls. Children explored more in the presence of female strangers than in the presence of male strangers. Married mothers made more maturity demands on their children than did single mothers, and all mothers placed more demands on daughters than on sons. Mothers appeared to be in greater control with daughters than with sons. Single mothers experienced more stress than did married mothers. Single mothers who were stressed communicated less optimally, were less nurturant, and tended to have children who were less compliant than were other mothers. For both single and married families, qualities of the mother-child interaction predicted children's behaviors toward female but not male strangers. Concluding discussion centers on influences affecting children's sociability and father's role in children's social development. (Author/RH)

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Children's Responses to Strangers:

Effects of Family Status, Stress, and Mother-Child Interaction

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This study was partially supported by Grant Number R01 MH/HD 32189 from the National Institute of Mental Health and from two grants from the Temple University Biomedical Research Support Fund. Portions of this research were presented at the Fourth Biennial Conference on Infant Studies in New York, April 1984. The authors are grateful for assistance in all aspects of this research from Barbara Wolf, Wilfredo Rodriguez, Alan Sockloff, Susan Cohen, Barbara Wasik, and William Dundon. This study could not have been done without the input, cooperation, and support from the families who participated in this project. Requests for reprints should be sent to Marsha Weinraub, Department of Psychology, Temple University, Philadelphia, Pennsylvania 19122.

Running Head: Family Influences on Children's Stranger Responses

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Abstract

Children's responses toward strangers, qualities of the mother-child interaction, and maternal stresses were examined in 38 children from single and two parent families. Responses to female and male strangers were observed in a modified Strange Situation. Behaviors were categorized into four behavioral systems: attachment, fear, affiliation, and exploration. Qualities of the mother-child interaction were assessed with a modified version of Baumrind's cuisinaire rod task, and questionnaires were used to measure maternal life stress. Children from single parent families were more fearful toward both male and female strangers than children from two parent families. Boys from both family groups were more affiliative towards the strangers than girls. Children explored more in the presence of the female strangers than in the presence of male strangers. Married mothers made more maturity demands on their children than single mothers, and all mothers placed more demands on their daughters than sons. With daughters more than sons, mothers appeared in more control. Single mothers experienced more stress than married mothers in relation to changes in employment, daily routines, and, for single mothers of sons, interpersonal relationships. Single mothers who were stressed communicated less optimally, were less nurturant, and tended to have children who were less compliant. For both single and married families, qualities of the mother-child interaction predicted children's behaviors toward the female but not toward the male strangers. Implications of these differences are considered in terms of the influences on children's sociability and the father's role in children's social development.

Children's responses to strangers:

Effects of family status, stress, and mother-child interaction

Individual differences in infants' and preschoolers' sociability and their affiliative responses toward strangers have attracted increased attention among developmental researchers (Clarke-Stewart, Umeh, Snow, & Pederson, 1980; Stevenson & Lamb, 1979; Thompson & Lamb, 1983). Several studies have demonstrated relationships between children's sociability toward strangers and the security of the mother-child attachment relationship, maternal interaction styles, and qualities of the caregiving environment (Clarke-Stewart et al., 1980; Easterbrooks & Lamb, 1979; Main, 1973; Thompson, Lamb, & Estes, 1982; Thompson & Lamb, 1983). However, these findings are all derived from samples of traditional two-parent, middle class families. Few studies have explored these factors as well as the influence of changing family circumstances and stressful life events on sociability for children raised in non-traditional families. The aim in this study was to examine the relationships between children's sociability toward strangers, qualities of the mother-child interaction, and stressful maternal life changes in single and two parent families.

Several researchers have shown that responses to strangers are influenced by characteristics of the mother-child interaction and the security of the attachment relationship (Main, 1973; Thompson, Lamb, & Estes, 1982; Thompson & Lamb, 1983). Main (1973) found that children who are more securely attached to their mothers at age one year display greater friendliness, cooperation, and more sociability toward strangers at 20 months than children with insecure attachment relationships. Likewise, securely attached infants display more competent exploratory behaviors and problem-solving skills than insecurely attached infants (Matas, Arend, & Sroufe, 1978).

Focusing on subgroups within the securely attached category, Easterbrooks and Lamb (1979) demonstrated relationships between qualities of the mother-infant interaction and children's social competence with peers and unfamiliar adults. They found that infants of the B_1 and B_2 attachment groups were more sociable towards unfamiliar adults and engaged in more frequent and sophisticated interactions with their peers than did infants of the less secure B_3 and B_4 subgroups. Easterbrooks and Lamb (1979) suggest that individual differences in sociability may be due to differences in the secure infant's mother-directed behaviors that either facilitate or impair effective peer and stranger interactions. Children's sociability may reflect a generalization of interactive capabilities that children learn through the parent-child relationship (Easterbrooks & Lamb, 1979; Thompson & Lamb, 1982, 1983).

According to Thompson and Lamb (1982, 1983), when the security of the mother-child attachment is stable over two assessment periods (12-1/2 and 19-1/2 months), sociability to strangers appears stronger and is highly stable over time. In addition, Thompson and Lamb observed that children in secure attachment relationships at 12-1/2 and 19-1/2 months (category B_1 and B_2) were most sociable towards strangers (consistent with Easterbrooks & Lamb, 1979), whereas children with insecure attachment relationships (A_1 and C_2) were least sociable towards strangers.

Recent studies have also examined how attachment classification can change over time in response to parental stress and changes in caregiving arrangements for children (Thompson, Lamb, & Estes, 1982; Thompson & Lamb, 1983; Vaughn, Egeland, Sroufe, & Waters, 1979). Thompson, Lamb, and Estes (1982) found that changes in attachment classification between 12-1/2 and 19-1/2 months were associated with changes in family circumstances such as maternal employment and regular nonmaternal care. They suggested that these changes may affect the

nature of the mother-child interaction within the home which may consequently influence children's responsiveness to unfamiliar persons.

Less optimal mother-child interactions may be the result of increased stresses and reduced supports in the single mother's life, and they may increase the child's risk for emotional, intellectual, and adjustment difficulties (Vaughn, Egeland, Sroufe, & Waters, 1979). According to Weinraub and Wolf (1983), children from single parent families tend to experience more significant and frequent life changes than children from two parent families. Stressful life circumstances in the mother's life may indirectly affect the child through their impact on the single mother's emotional adjustment, her coping abilities, and her effectivenss as a parent (Weinraub & Wolf, 1983).

This study not only examines children's responsiveness toward strangers beyond the child's second year of life, but also examines differences in children's responses to male and female strangers as a function of the father's presence and absence in the family. This allows us the opportunity to investigate some of the determinants of children's social responses and to examine the potential effects of father absence on children's social development.

In this study, we focus on the following three questions concerning differences in children's responses to strangers. First, do children from single and two parent families respond differently to male and female strangers? Second, how does maternal stress influence the quality of mother-child interactions and consequently possibly affect children's responses to strangers? And third, how do qualities of the mother-child interaction affect children's responses to male and female strangers?

Method

Participants

The sample consisted of 38 mother-child pairs, 19 children from single parent families, and 19 children from two parent families. Single parents were defined as mothers who had raised their child since birth or shortly thereafter without the father present in the home. Of the single mothers, nine were never married and had made a conscious decision to raise their child on their own prior to their child's birth. Three of these nine women had consciously chosen to become pregnant. The remaining ten single mothers (five mothers of sons) were separated or divorced from their husbands prior to or very soon after their child's birth.[1]

Mothers were recruited from letters to pediatricians, posters in health clinics, daycare centers, women's centers, and parenting organizations. In addition, advertisements were placed in local newspapers, in newsletters of single parent organizations, and were announced on local radio stations.

Each family status group included ten boys and nine girls. The mean age of the children was 36.8 months, ranging from 27 to 55 months. Ages of boys and girls from single and two parent families were not significantly different. The majority of children were only borns; there were three children from two parent families (one girl and two boys) who were first borns and two girls from single parent families who were second borns. All of the mothers in the sample were white except for one single parent and one married parent who were black. In the single parent sample, one boy and one girl were biracial. Ages and educational levels of single and two parent mothers were not significantly different. The mean age of the mothers was 33.2 years, ranging from 23 to 44 years. Four mothers had high school degrees, 12 mothers had two or more years of college, six mothers had college degrees, and 16 mothers had graduate/professional training.[2]

Despite attempts to select a sample of single and married mothers of similar employment status and with similar income levels, significant differences were found in the number of hours per week single mothers were employed as compared to married mothers (33.68 hours vs. 17.21 hours, $F(1, 36) = 12.39$, $p<.001$). Only one single mother, but six married mothers, did not work outside the home. Two single parents were employed less than 20 hours per week, two were employed between 20 and 35 hours per week, and 14 of the 18 working mothers were employed full time (over 35 hours per week). In contrast, six married mothers were employed less than 20 hours per week, four were employed between 20 and 35 hours per week, and only three of the 13 working mothers were employed full time. Although the single parent mothers worked more hours per week than the married mothers, the mean per person income for single parent households was less than that of two parent families ($6714 vs. $8551, 1980 dollars). This difference, however, was not significant.

The fact that single mothers worked more hours per week than married mothers was reflected in the number of hours their children attended a daycare center or nursery school. Although equal numbers of children in the two samples ($n=9$) attended a day care center or nursery school, the nine single parent children attended day care, on average, 39.4 hours per week, in contrast to the nine children from two parent families who attended day care 25.4 hours per week.

Procedures and measures

Strange situation.

Children's responses to a male and female stranger in the presence and absence of their mother were observed using a modified version of Ainsworth's Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978). Episodes are described in Table 1. The entire 30 minute situation was videotaped. Only episodes 2 through 5 and 9 through 12, from when the stranger entered the room to

when the mother returned, were coded. A total of 20 minutes (10 minutes with each sex of stranger) for each child was used for data analysis. To avoid stranger specific results, children were randomly assigned to different male and female strangers from a pool of six male and five female strangers.

Insert Table 1 about here

A detailed behavioral coding scheme was adapted from Greenberg and Marvin (1982) and used to code 20 child behaviors from videotapes. These behaviors, described below, were categorized into four behavioral systems: attachment, fear/ wariness, affiliation, and exploration.

Individual behaviors were coded by 10 second intervals. A frequency measure was calculated by totalling the number of intervals in which an individual behavior occurred. Behavioral system scores were calculated by summing the total number of intervals in which any individual behaviors within each system were activated.

The attachment behavior system included those behaviors which increased or maintained the child's proximity and contact with the mother. The attachment behaviors included looking at the mother, approaching the mother to achieve close proximity, following the mother, crying or distress vocalizations directed towards the mother, touching the mother or requesting to be picked up by the mother, and maintaining close proximity to the mother.

The fear/wariness behavior system included individual behaviors which had the predictable function of decreasing or avoiding the child's interactions with the stranger. These behaviors included locomotor withdrawal from the stranger, gaze aversion or avoidance, negative verbalizations in response to the stranger, crying in response to either being alone with the stranger or to the mother's absence, and ignoring the stranger's requests.

The affiliative behavior system contained behaviors which functioned to promote or maintain proximity and interaction with the stranger. These behaviors included smiles directed toward the stranger, positive verbalizations or conversations directed to the stranger, locomotor approaches toward the stranger which led to conversation, play, or close proximity with the stranger, sharing play, touching the stranger, giving, taking, or showing toys to the stranger, and positively responding to the stranger's requests.

The exploratory behavior system included behaviors which promoted the child's play and the child's exploration of the room and its furnishings. These behaviors included exploratory manipulation and exploratory locomotion.

Coding of the individual behaviors and behavior systems was limited to instances where behaviors were displayed for at least three seconds to eliminate the occurrence of fleeting or momentary behaviors. Similar criteria were used by Greenberg and Marvin (1982) with intercoder reliabilities between 0.87 and 0.90.

After training, interobserver reliability on the individual behaviors were calculated by having the second trained observer independently code 25% of the videotapes selected at random. Two observers were trained to at least a 0.65 level of interobserver reliability on each measure or the measure was deleted from the coding scheme. Percent agreement between observers on all occasions ranged from 0.67 to 100, with a median of 0.78.

Mother-child interaction.

A modified version of Diana Baumrind's cuisinaire rod task (1967) was used to assess five qualities of the mother-child interaction. Measures were obtained of maternal control, maternal maturity demands, mother-child communication, maternal nurturance, and the child's compliance with maternal demands.

The experimenter introduced the task to the mother by demonstrating a variety of activities with the cuisinaire rods, such as labeling, categorization, and sequencing activities that were appropriate to the child's age. The activities designed for the younger children consisted of exploring the concepts of size, shape, and color. The concept of number was included for the older children. The mother was instructed to select tasks appropriate for her child so as to create as interesting a learning experience as possible. In addition to the rods, a number of distracting toys were placed across from the mother and child. The mother was instructed to keep her child from playing with these toys until the task was complete. After 10 minutes, the mother and child were signalled to clean up. They were given up to four minutes to put all the rods back into their box before the experimenter returned.

Each mother-child interaction episode was videotaped and scored on a five point rating scale adapted from Baumrind. The revised scale yielded summary scores based on four to nine items for each category measure. Measures were obtained in the five following areas. Maternal control included items measuring the mother's attempts and effectiveness in structuring her child's activities, having her child conform to the rules of the task, and providing effective directions. Maternal maturity demands measured the extent of the mother's demands on her child to perform intellectually, given the child's age, and to act maturely and independently. Mother-child communication included items measuring the ease, spontaneity, and clarity of the mother's verbal and nonverbal communications and the degree to which the mother acknowledged and understood her child's communications. Maternal nurturance rated the mother's responsiveness to her child's frustration level, interests, and activities. It also measured her physical displays of affection, the absence of hostile behaviors to the child, and the extent to which she communicated concern,

affection, and patience to her child. The child's compliance with maternal demands indicated the degree to which the child responded easily and freely to the mother's requests, to the activities with the rods, as well as the extent to which the child was actively oppositional or inattentive.

Alpha coefficients computed on a subset of these data (Weinraub & Wolf, 1983) ranged from 0.72 to 0.93 on the individual items which made up the category scores, demonstrating the internal consistency of the items making up each of the five measures. Interrater reliability was obtained by having a second rater independently code 9 of the 38 video taped interactions. The correlations between the rater's scores for each of the five measures were: maternal control, 0.98; maternal maturity demands, 0.75; mother-child communication, 0.64; maternal nurturance, 0.93; and child compliance, 0.97.

Stress.

A modified version of the Holmes and Rahe (1967) Social Readjustment Rating Scale (SRRS) was used to measure stress. This 53 item checklist included the original list of 43 potentially stressful life events devised by Holmes and Rahe and 10 new items added to reflect potentially stressful life events and changes most characteristic of women in our sample. Each mother was instructed to check the relevant life events which occurred during the past twelve months. The total number of items checked reflected the total stress score for each mother. Rather than attempt to quantify the subjective experience of each event, an unweighted scoring approach was used to most accurately reflect the number of stressful life events experienced by mothers of single and two parent families.

It was hypothesized that single parents would face more stressful life changes than married mothers, and in addition, that the nature of these stressful life events would differ in single and two parent families. In order to

assess the effects of stress on the quality of the mother-child interaction, it was necessary to consider not only the number of stressful events, but the similarities and differences in the life circumstances of single and married mothers and how these stressful life events might affect the mother-child relationship in different ways. The 53 items of the Holmes and Rahe Scale were classified into six apriori categories, each comprising from 1 (for pregnancy) to 14 items, which reflected classes of potentially stressful life events. Each item was classified only once into the most relevant category. Four items were omitted from the classification because they could not be coded into only one relevant dimension. The individual items composing the six categories were independently and reliably coded by two raters, with percent item agreement of 0.93. The resulting six categories were (1) employment, (2) pregnancy, (3) finances, (4) daily hassles and changes in daily routines, (5) vacations, and (6) interpersonal relationships. In addition to an overall stress score, each subject received scores on these individual stress categories.

Data analysis

Preliminary analyses were performed to evaluate and control for the possible effects of the child's age and the effects of specific strangers on the children's responses to the male and female strangers. Three way analyses of variance, with stranger as a repeated measure, were used to assess family status and child sex differences in children's responses to male and female strangers. To examine the effects of the family status and child's sex on the mother-child interactions and stressful life event scores, two way analyses of variance were performed. Partial correlations controling for child sex and family status were used to assess the impact of stress and stress subcategories on the mother-child interaction as well as the effects of stress and qualities of the mother-child interaction on the children's responses to male and female strangers. In

situations where predictions could be reliably determined from the literature, one-tailed tests were used. Unless noted, two-tailed tests are reported.

Results

Responses to male and female strangers

The mean scores for each of the four behavior systems presented by the child's sex, stranger's sex, and family status appear in Table 2. Preliminary analyses revealed there were no significant effects of the child's age or of specific female and male strangers on the children's responses in the Strange Situation.

Insert Table 2 about here

Children from single parent families demonstrated more fearful behaviors toward both male and female strangers than children from two parent families ($F(1,34) = 5.87$, $p<.02$). In order to determine the source of these differences, analyses were performed on the five individual behaviors constituting the fear behavioral system. Children from single and two parent families did not differ in the amount of gaze aversion or locomotor withdrawal displayed towards the strangers. However, single parent children ignored the stranger's requests to play or to be comforted in the mother's absence significantly more than two parent children ($F(1,34) = 4.43$, $p<.04$). Additionally, single parent children tended to cry more when left alone with the strangers ($F(1,34) = 2.91$, $p<.10$) and tended to express more negative verbalizations towards the strangers ($F(1,34) = 3.24$, $p<.08$). No interactions were found with the sex of the strangers.

Sex of child effects were found for the frequency of affiliative behaviors displayed towards the strangers. Boys demonstrated significantly more affili-

ative behaviors toward the strangers than did the girls ($F(1,34) = 10.44$, $p<.003$). Follow up analyses performed on the seven individual affiliative behaviors found no sex differences for smiles, approaches to the strangers, touching the strangers, and giving, taking, and showing toys to the strangers. However, boys showed a tendency to engage in more positive verbalizations and conversations with the strangers ($F(1,34) = 3.02$, $p<.09$) and spent significantly more time sharing play with the strangers than did girls ($F(1,34) = 6.73$, $p<.01$). In addition, a trend toward significance was found for a 3-way interaction on children's positive responses to stranger's requests ($F(1,34) = 3.35$, $p<.08$). Two-way analyses of variance for child sex by stranger sex (repeated measure) were then performed separately for the single parent and two parent children. A trend towards significance was found for the single parent children, ($F(1,17) = 3.83$, $p<.07$), but not for two parent children. Single parent boys tended to display more positive responses to the male stranger's requests than to the female stranger ($M = 6.3$ vs. $M = 3.2$, t (9) $= 2.05$, $p<.07$). However, for the girls from single parent families the reverse tended to be the case; the girls responded slightly more positively to the requests of the female strangers than to the male strangers ($M = 4.2$ vs. $M = 2.9$).

Differences were also found in the frequency that attachment and exploratory behaviors were displayed in the presence of the male versus female strangers for children of both family groups. There was a tendency for children to express more attachment behaviors toward their mothers in the presence of the male as compared to the female stranger ($F(1,34) = 3.43$, $p<.07$). Analyses of the six individual attachment behaviors revealed no differences based on the stranger's sex for looks to the mother, following the mother, distress vocalizations, and touching the mother or requesting to be picked up. However, children made significantly more approaches toward the mother ($F(1,34) = 4.88$,

$p<.03$) and tended to remain more frequently in close proximity to the mother ($F(1,34) = 3\ 34$, $p<.08$) in the presence of the male stranger than the female stranger. Although these effects appeared more pronounced in the single parent than in the two parent groups, this interaction was not significant.

Significantly more exploratory behaviors were displayed in the presence of the female stranger than in the presence of the male stranger ($F(1,34) = 14.28$, $p<.0006$). Analyses of the two individual exploratory behaviors, exploratory manipulation and exploratory location, revealed that in the presence of the female stranger children engaged in more exploratory manipulation ($F(1,34) = 9.80$, $p<.004$) than in the presence of the male stranger. However, for exploratory locomotion, a significant two-way interaction for family status by the sex of stranger was found ($F(1,34) = 5.52$, $p<.02$). To explore this interaction, separate t-tests were performed for single parent and two parent children. Two parent children tended to demonstrate more exploration of the playroom in the presence of the male than the female stranger ($M = 4.79$ vs. $M = 2.74$, $t\ (18) = 1.99$, $p<.06$). Single parent children appeared to display slightly more exploration in presence of the female stranger than the male stranger, but this difference was not significant ($M = 4.95$ vs. $M = 3.42$).

Differences in mother-child interaction

Insert Table 3 about here

Table 3 presents the mean scores for single and married mothers and their children[3] as well as the results of the two-way analyses of variance. Single mothers placed fewer demands for maturity on their children than did two parent mothers ($F(1,33) = 4.14$, $p<.05$). Also, both single and two parent mothers made fewer maturity demands on their sons than on their daughters ($F(1,33) = 4.76$,

$p<.04$). Additionally, single and married mothers enforced their rules, structured their child's activities and appeared in more control with their daughters than their sons ($F(1,33) = 4.03$, $p<.05$). However, this difference appeared more pronounced in single parent families than in two parent families ($F(1,33) = 2.96$, $p<.10$). No differences were found in the mother-child communication, maternal nurturance, or the child's compliance with maternal demands between single and two parent families.

Differences in stress

Insert Table 4 about here

It was hypothesized that single mothers would experience more stressful life changes than married mothers; therefore, one-tailed tests of significance were used to test for family status main effects. Table 4 summarizes these data[3] and the results of the two-way analyses of variance. A trend for the main effect of family status was found for the total number of stressful life events experienced by single and married mothers ($F(1,33) = 2.19$, $p<.07$). As expected, single mothers tended to experience more stressful life changes in comparison to two parent mothers. However, this was qualified by a trend for a family status by child sex interaction ($F(1,33) = 2.90$, $p<.10$). T-tests were then performed separately to examine differences in stress reported by single and two parent mothers raising sons and single and two parent mothers raising daughters. Although there were no significant differences in overall stress scores experienced by single and married mothers raising daughters, single mothers who were raising sons experienced more potentially stressful life events than two parent mothers raising sons ($t(17) = 2.42$, $p<.03$). There were no significant differences in the total number of stressful life events reported by single

mothers raising either sons or daughters and married mothers raising daughters. However, the married mothers raising sons reported about half as much stress in comparison to all the other groups.

Single mothers experienced more pressures concerning employment ($F(1,33) = 5.75$, $p<.01$) and reported more stress due to changes in daily routines ($F(1,33) = 5.32$, $p<.01$) than two parent mothers. In addition, a significant interaction was found for stress resulting from interpersonal relationships, such as family and social relationships, ($F(1.33) = 4.24$, $p<.05$). Separate t-tests were then conducted. These demonstrated that single mothers raising sons tended to experience more interpersonal stressors than married mothers raising sons ($t(17) = 1.90$, $p<.08$); there were no differences in stress resulting from interpersonal relationships for single and married mothers raising daughters. Married mothers experienced more stressful life changes in relation to a pregnancy or birth ($F(1,33) = 8.00$, $p<.004$) than single mothers. Contrary to expectation, single and married mothers did not differ in terms of stressful life events related to finances.

Relationships between stress, mother-child interaction, and children's responses to strangers

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Insert Table 5 about here

Table 5 presents the partial correlations between the overall stress scores, five of the six stress subcategories[4] and the five mother-child interaction scores controling for child's sex. Z-tests for differences between the correlations for single and two parent families were performed.

Analyses of the overall stress scores demonstrated that single mothers who were stressed communicated less optimally with their children ($r = -.61$, $p<.01$), were less nurturant ($r = -.68$, $p<.001$), and had children who tended to be less compliant with their mothers' requests ($r = -.37$, $p<.10$). In two parent families, stressful life events tended to be associated with reduced maternal nurturance ($r = -.33$, $p<.10$). Stressful life changes and events had a greater negative impact on mother-child communication in single than in two parent families ($z = 2.59$, $p<.05$).

Specific subcategories of stressful life events were related to qualities of the mother-child interaction in single parent families. Single mothers experiencing stress concerning their employment tended to appear in less control ($r = -.33$, $p<.10$), communicated less optimally with their children ($r = -.42$, $p<.05$), were less nurturant ($r = -.56$, $p<.01$), and had children who tended to be less compliant with their mother's requests ($r = -.39$, $p<.10$). Single mothers who were experiencing stress due to financial concerns communicated less optimally with their children ($r = -.46$, $p<.05$) and were also less nurturant ($r = -.51$, $p<.05$). Stress resulting from changes in daily routines had a greater negative impact on mother-child communication in single than in two parent families ($z = 3.11$, $p<.01$). In single parent families, stressors due to daily routines were also associated with less maternal nurturance ($r = -.64$, $p<.01$), and tended to be related to less maternal control ($r = -.35$, $p<.10$), and less child compliance ($r = -.37$, $p<.10$). Stressful life events resulting from vacations in single parent families were negatively correlated with mother-child communication ($r = -.46$, $p<.05$) and maternal nurturance ($r = -.41$, $p<.05$). Single mothers experiencing stress from their relationships with family and friends tended to be less nurturant ($r = -.34$, $p<.10$).

Insert Table 6 about here

Table 6 presents partial correlations between the overall stress scores and children's responses to female and male strangers as well as partial correlations between the five mother-child interaction measures and children's responses to female and male strangers.

Mothers experiencing more stressful life changes had children who showed more affiliative behaviors towards both female (r = .33, p<.02) and male strangers (r = .33, p<.02). These children also showed less exploratory behaviors in the presence of female (r = -.30, p<.04) and male strangers (r = -.48, p<.002). There was no relationship between stress in the mothers' life and children's tendency to display attachment or fear.

In both family groups, qualities of the mother-child interaction predicted children's behaviors toward the female stranger. Mothers who made more maturity demands had children who displayed fewer attachment behaviors (r = -.29, p<.05), showed less fear (r = -.37, p<.01), and displayed more affiliative behaviors (r = .37, p<.01) to the female stranger. Mothers who communicated more optimally with their children had children who showed fewer attachment behaviors (r = -.36, p<.02) and tended to be less fearful (r = -.27, p<.06) toward the unfamiliar women. Maternal nurturance was not related to children's responses toward strangers, but there was some relationship between children's compliance and children's behaviors toward female strangers. Children who were compliant with their mother's requests showed more exploratory behaviors (r = .28, p<.05) and tended to display fewer attachment behaviors than other children (r = -.26, p<.07). Although several correlations approached significance, there were no significant relationships for the total sample between qualities of the mother-

child interaction and children's responses to the male stranger. Thus, more stressful maternal life changes were associated with children's increased affiliative and decreased exploratory behaviors to both unfamiliar men and women, whereas qualities of the mother-child interaction were only associated with children's behaviors toward female, but not male strangers. The patterns of these relationships appeared similar for single and two parent families.

Discussion

Findings from this study illuminate (1) some of the factors which influence children's responses to strangers, (2) the effects of family status on maternal stress and qualities of the mother-child interaction, and (3) the effects of stress on mother-child interaction and consequently on children's responses to strangers. These results also have implications for our understanding of the father's role in children's social development.

Children's responses to strangers

Family status, child sex, and stranger sex all affect children's responses to unfamiliar people in the Strange Situation. Compared to children raised in two parent families, single parent children were more fearful to both male and female strangers. They tended to express more negative verbalizations toward the strangers and to cry more either in response to their mother's departure or to being left alone with the strangers. In the mother's absence, the single parent children tended not to go to the strangers for comfort or support when distressed. They preferred to be left to themselves, standing by the door, crying and calling for their mothers. When the strangers approached to try to comfort them, the children either withdrew or pushed them away. Sometimes they cried more or told the stranger to "leave me alone" or "stay away." In other cases, when the strangers called from a distance for the child to come back and play, the child tended to refuse or simply to ignore their requests.

Interestingly, boys from both groups of families were more affiliative towards the strangers than were girls. They spent more time sharing play and tended to converse more with the strangers than did the girls. Not only are these sex differences contrary to our society's sex role sterotypes, but they are also at variance with findings already in the literature. Clarke-Stewart, Umeh, Snow and Pederson (1980) and Thompson and Lamb (1983) found girls to be more sociable than boys. What can account for these discrepant findings? It would be tempting to attribute these discrepancies to either our use of both male and female strangers or to our inclusion of single parent families. However, these differences cannot account for the discrepancies, because even in two parent children observed only with the female stranger, boys were more affiliative than girls. It is possible that the explanation of these discrepant results concerns developmental differences. The children in the Thompson and Lamb study (1983) were 19-1/2 months, whereas in the present study the children are between 27 and 55 months. Clarke-Stewart et al., (1980) reported significant increases in children's sociability between 12 and 30 months. Although girls tended to be more sociable with strangers than boys, this was only the case at 24 and 30 months. Perhaps developmental changes in responses to unfamiliar men and women differ for boys and girls, with sex differences varying as a function of the child's age.

Stranger sex was important. Children from both single and two parent families tended to express more attachment behaviors toward their mothers with male than female strangers and to display more exploratory behaviors with female than male strangers. In the male stranger's presence, children made more approaches toward their mothers and tended to remain in close proximity to them. With the female stranger present, they explored the playroom and its toys more. These results are consistent with previous studies (Greenberg, Hillman, & Grice, 1973;

Lamb, Hwang, Frodi, & Frodi, 1982; Morgan & Ricciuti, 1969) of younger infants which suggest infants respond more positively to female than to male strangers. However, we cannot rule out the possibility that design characteristics of the study (female strangers always preceded male strangers) have contributed to, if not been responsible for, these sex of stranger differences. Whatever the case, these findings are also consistent with attachment theory and a behavior systems approach which maintains that the attachment and exploratory systems work in a complementory or inhibitory manner. Therefore, it is not surprising to find that when children displayed more attachment behaviors in the male stranger's presence, they also displayed fewer exploratory behaviors.

Effects of family status on maternal stress

Previous analyses on a subsample of these families (Weinraub & Wolf, 1983) showed that single mothers tend to experience more potentially stressful life changes and events than married mothers. This study extended these findings with a larger sample of families. Because of the larger sample, analyses as a function of child sex were possible.

For single and married mothers raising daughters, there were no differences in stress, but when single and married mothers raising sons were compared, single mothers tended to report more stress. In fact, it was not so much that the single mothers of sons had increased levels of stress, but the data suggest that stress in married women with sons was particularly low compared to the other three groups. In an attempt to explain the reduced stress scores of this group, we compared the two parent families with sons and two parent families with daughters on the number of hours the mothers worked, the number of hours the children attended daycare, and per capita income. There were no significant differences between the married mothers with sons and the married mothers with daughters on any of these variables. Thus we cannot say these variables were related to the reduced stress scores.

Perhaps the father's presence in the home when rearing sons created in some way an easier situation for the mother. The evidence suggests that fathers may be more actively involved and interact more with their sons than with their daughters (Power, 1981; Weinraub & Frankel, 1977). This increased father-son interaction may make the mother's interactions with her sons less demanding and may affect how stressful she sees other events in her life.

There were important differences in the nature of the stressful life events reported by single and married mothers. Married mothers experienced more stresses concerning a pregnancy or birth than single parent mothers, whereas single mothers experienced more stresses concerning their jobs and daily changes in routines at home. Also, for single mothers of sons, stresses tended to center more around their interpersonal relationships than for married mothers raising sons, who reported very little stress in this area. Surprisingly, no differences were observed between single parents and two parents in the frequency with which they reported financial stresses.

Effects of family status and child sex on mother-child interaction

Although previous analyses on 28 of these families indicated no significant differences in the mother-child interactions in the two groups (Weinraub & Wolf, 1983), subsequent analyses of all 38 families revealed some effects of family status and child sex. Although single parent mothers were as nurturant and communicated as effectively as did married mothers, single mothers made fewer maturity demands on their children than did married mothers. In addition, the child's sex affected the parent-child interaction. Both single and two parent mothers placed fewer demands for maturity on their sons than on their daughters. Additionally, mothers from both single and two parent families enforced task rules, structured their child's activities, and appeared in more control with their daughters than with their sons. This sex difference in maternal control, though only a trend, appeared more pronounced in single parent families.

The effects of stress on children's responses to strangers

Maternal stress was related to children's responses to male and female strangers. Mothers who experienced more stressful life changes had children who were more friendly and outgoing toward the unfamiliar men and women and who spent less time exploring in their presence. Thus, when mothers were stressed, their children sought out the attention of other adults. These data suggest that children may be quite resilient and adaptive individuals, able and likely to reach out to others when their mothers are highly stressed.

What might be the mechanism by which stress affects children's responses to strangers? One possibility, of course, is that mothers under stress are less sensitive and responsive to others and less emotionally available. Consequently, qualities of the mother-child interaction should be impaired under conditions of high stress. Our data suggest that, in general, maternal stress affects the ease, spontaneity and clarity of the mother's communications to her child, the mother's responsiveness to her child's frustration level, interests and activities, and the child's compliance with the mother's demands. These effects were especially prominent in single parent families. Interestingly, stresses with the most impact on qualities of the mother-child interaction were those relating to changes in daily routines; stresses related to employment had almost as much impact. The finding that the relationship between stress levels and qualities of the parent-child relationship were so much less apparent among married mothers suggests that fathers may play an important role in buffering the effects of maternal stress.

These findings are similar to those of Crnic, Ragozin, Greenberg, Robinson, and Basham (1983) in which stress had greater effects on the mother-child interactions in prematurely born than full term infants. Perhaps stress is more apparent in some families than others, and perhaps this vulnerability to stress is what defines a high risk family (Goldberg & Kearsley, 1983).

Differences in the responses of single and two parent children to strangers appears to be mediated to some extent by differences in mother-child interactions. The more optimal the mother-child interaction, the fewer fear and attachment and the more affiliative behaviors the child displayed. This concurs with the notion of the child using the mother as a secure base to explore the environment (Ainsworth, et al., 1978). These findings suggest that mothers who display an optimal interactive style have a secure and trusting relationship with their children which in turn influences how their children interact with other people in new and unfamiliar situations. It is of note that qualities of the mother-child interaction predicted to children's responses to female but not male strangers.

Our observations concerning family status differences in parent-child interaction and in children's stranger responses dovetail nicely. Since single mothers made fewer maturity demands on their children than married mothers, and since maturity demands were associated with more fear in the strange situation, it is not surprising that single parent children expressed more fearful behaviors than two parent children. It is possible that the demandingness measured in the maternal teaching situation is related to a more generalized demandingness for sophisticated behaviors in social as well as learning situations. Children with more parental encouragement to acquire social sophistication may encounter and interact with strangers more frequently. This greater familiarity may result in less fear. Alternatively, mothers of fearful children may view their children as less socially and emotionally mature and consequently expose them to fewer social experiences. Only longitudinal research can ascertain the direction of this relationship.

Several observations suggest that the relationship between maternal stress and children's responses to strangers cannot totally be explained by looking at

the effects of stress on the mother-child interaction. First, even though stress and mother-child interaction were more strongly related in single parent families than two parent families, family status did not mediate the effects of stress on children's responses to strangers. For both single and two parent families, maternal stress appeared to predict children's affiliation and exploration equally well. Second, maternal stress was related to both children's affiliation and exploration behaviors, while mother-child interaction was related to attachment, fear, and affiliation behaviors but not exploration. Although many of the mother's life stresses may influence the child indirectly through their effects on the mother-child interaction, some of these life stresses experienced by the mother may affect the child directly. For example, change in maternal residence or loss of a mother's close friend may have direct consequences for the child's sense of loss and subsequent behavior toward others, regardless of whether or not they affect the mother's behavior in any way. To explore this possibility, future studies of the effects of maternal life stresses on parent-child interactions and child outcomes should take separate and independent measures of maternal and child stress.

What do these results suggest about the father's contribution to the child's social development?

The current study has compared single and two parent families on a variety of background, process and outcome measures. The results suggest that fathers may contribute to child development in at least three specific ways.

First, these data suggest that fathers play an important role in reducing maternal stress, especially for mothers of sons. In a father's absence, mothers not only work more hours, but they also report more stresses related to employment and work demands. The absence of a martial partner and an alternate caregiver, as well as longer hours on the job, may directly contribute to the

greater stresses centered around daily hassles and routines experienced by single mothers and their children. The especially low level of stress associated with interpersonal relationships and daily routines reported by married mothers of sons is intriguing, and suggests that fathers of sons may be somehow more emotionally supportive toward their wives than fathers of daughters. The continuing greater valuation of sons than daughters, especially by fathers, may contribute to this difference (Hoffman, 1977).

Second, the presence of the father appears to buffer the effects of stressful events in the mother's life. In this study, the effects of stress on the mother-child interaction were much more prominent in single than two parent families. By providing emotional support (e.g., Lewis & Weinraub, 1976; Pederson, Yarrow, Anderson, & Cain, 1979), fathers may prevent stressful events from becoming serious strains on the mother's interactions with her child. As alternative caregivers, fathers may also be able to take over parenting functions while mothers withdraw from the family situation and recover from the disorienting effects of stressful life events. In this way, stressful events may have less effect on the mother-child relationship in two-parent families.

Finally, differences in the level of demands single and married mothers placed on their children suggest a direct contribution of fathers, especially for boys. As earlier theory and research has suggested (e.g., Emmerick, 1959; Stolz, 1966; for a review, see Weinraub, 1978), fathers may play an important role in helping children to conform to higher levels of task performance. By observing their husbands who demand high levels of performance and discipline, married mothers may attain a more balanced view of their sons' behavior and, in turn, may themselves demand more socially self-sufficient and cognitively sophisticated behaviors from their children than single parent mothers.

Footnotes

[1]In four single parent families, the father had lived at home with the child for a short period. In three cases, two girls and one boy, the father had lived at home for one month, for four months, and for six months, respectively. In the fourth case, the father lived at home with his son for 15 months. We did not see this child in our study until he was 4-1/2 years of age, so he had lived for the last three years in a single parent family.

[2]Because of the unusual and unrepresentative nature of the sample, generalization about single parents cannot be drawn, but differences between these and matched two parent families can be examined, and correlations across variables can be investigated.

[3]Differences in a subsample of 28 of these 38 mothers were reported in Weinraub and Wolf (1983). These data are presented here to aid in the interpretation of correlations reported later in the paper, to expand the results of Weinraub and Wolf to a larger sample, and to test for the effects of child sex and its interaction with family status.

[4]The partial correlations for the subcateg of stresses related to pregnancy could not be computed because of low mean scores and therefore were not included in Table 5.

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Table 1

The Modified Strange Situation

Number of Episode	Duration	Event	Description
1	2 min	Mother and child alone in playroom.	Child explores room and plays with toys on floor. Mother is nonparticipant.
2 [a]	3 min	Stranger enters playroom.	Stranger enters room and introduces herself to the mother. Sits quietly in chair for first minute, reading a magazine. Stranger converses with Mother for 2 minutes.
3	4 min	Stranger approaches and interacts with child.	Stranger plays on floor near child for 1 minute. Stranger then initiates interaction with child. Stranger and child play for 3 minutes.
4	2 min	Mother leaves while stranger and child continue to play.	Mother leaves playroom. Child and stranger continue to play for 2 minutes.
5	1 min	Stranger distances from child and returns to the chair.	Stranger returns to chair for 1 minute and instructs child to continue playing with toys.
6	1 min	Mother returns to playroom.	Mother greets and/or comforts child and then returns to her chair. Child plays on floor for another minute.
7	2 min	Stranger leaves.	Mother and child alone for 2 minutes.
8-14	15 min	Episodes 1-7 are repeated with a male stranger.	

[a]Episodes 2 through 5 and 9 through 12 were coded for data analysis.

Table 2

Behavioral system frequency scores as a function of family status and child and stranger sex

Behavioral System	Stranger Sex	Single Parent		Two Parent	
		sons	daughters	sons	daughters
Attachment[a]	female	4.90	6.78	6.60	6.78
	male	8.40	9.22	6.30	7.67
Fear[b]	female	3.20	4.78	.60	1.44
	male	4.70	4.11	2.40	2.67
Affiliation[c]	female	31.50	26.00	33.50	25.00
	male	31.80	28.22	33.60	27.33
Exploratory[d]	female	33.50	33.33	27.70	34.44
	male	24.70	29.00	23.60	27.67

[a]Stranger sex effects, $F=3.43$, $df=1,34$ $p<.07$

[b]Family status effects, $F=5.87$, $df=1,34$ $p<.02$

[c]Child sex effects, $F=10.44$, $df=1,34$ $p<.003$

[d]Stranger sex effects, $F=14.28$, $df=1,34$ $p<.0006$

Table 3

Effects of family status and child sex on mother-child interaction

Mother-Child Interaction Scores		Single Parent		Two Parent	
		sons	daughters	sons	daughters
Maternal Control[a,d]	M	14.00	20.44	19.10	19.67
	s.d.	4.47	4.61	6.24	5.10
Maturity Demands[b,c]	M	5.78	8.89	8.70	9.56
	s.d.	2.28	2.62	2.83	3.09
Mother-Child Communication	M	11.89	11.33	12.30	11.22
	s.d.	2.52	2.69	2.00	3.56
Maternal Nurturance	M	18.11	18.56	19.10	16.78
	s.d.	4.11	4.48	2.85	4.74
Child's Compliance	M	8.89	13.33	12.80	13.67
	s.d.	4.51	4.95	5.55	5.15

[a] Child sex effects, $F=4.03$, $df=1,33$ $p<.05$

[b] Family status effects, $F=4.14$, $df=1,33$ $p<.05$

[c] Child sex effects, $F=4.76$, $df=1,33$ $p<.04$

[d] Family status x child sex effects, $F=2.96$, $df=1,33$ $p<.10$

Table 4

Differences in the nature of potentially stressful life events in single and two parent families[a]

	Single Parent		Two Parent		F ratios		
Stress Scores	sons	daughters	sons	daughters	family status	child sex	family x sex
Overall Score	9.78	8.11	4.50	8.56	2.19[1]		2.90[1]
Employment	2.56	1.78	.50	1.44	5.75**		2.88[1]
Daily Routines	2.22	2.11	.40	1.11	5.32**		
Interpersonal Relationships	2.11	1.56	.80	2.44			4.24*
Pregnancy	0	0	.40	.56	8.00**		
Finances	.89	.67	.80	1.00			
Vacation	1.44	1.22	1.60	1.44			

[a]Tests for main effects of family status were one-tailed. All others were two-tailed.

[1]$p < .10$.

*$p < .05$.

**$p < .01$.

Table 5

Partial correlations between overall stress scores, stressful life event category scores, and mother-child interaction measures (child sex partialled)

Quality of Mother-Child Interaction		Source of Stress: Overall Stress	Employment	Finances	Daily Routines	Vacations	Interpersonal Relationships
Maternal Control	SP	-.29	-.33[1]	.05	-.35[1]	-.17	-.04
	TP	-.02	-.10	-.12	.15	.07	-.08
	Total[a]	-.23[1]	-.28*	-.08	-.17	-.02	-.15
Maternal Demands	SP	-.11	-.09	.07	-.25	-.15	.12
	TP	.04	.00	.09	.31[1]	.18	-.13
	Total	-.10	-.10	.05	-.07	.06	-.09
Mother-Child Communication	SP	-.61**[b]	-.42*	-.46*	-.70***[b]	-.46*	-.19
	TP	-.21	-.20	-.29	-.22	.10	-.13
	Total	-.42**	-.31*	-.37**	-.49***	-.11	-.16
Maternal Nurturance	SP	-.68***	-.56**	-.51*	-.64**	-.41*	-.34[1]
	TP	-.33[1]	-.29	-.09	-.36[1]	.11	-.30
	Total	-.57***	-.47**	-.31*	-.54***	-.10	-.36*
Child Compliance	SP	-.37[1]	-.39[1]	-.10	-.37[1]	-.28	-.10
	TP	-.17	-.15	-.27	-.13	.25	.11
	Total	-.31*	-.31*	-.21	-.28[1]	.05	-.16

[a]For correlations with single and two parent families together, family status was partialled in addition to child sex.

[b]Significant difference between single parent and two parent correlations

[1]$p<.10$. *$p<.05$. **$p<.01$. ***$p<.001$.

Table 6

Partial correlations between overall stress scores, mother-child interaction measures and children's responses to female and male strangers (child sex partialled)

		Female Stranger				Male Stranger			
		Attach	Fear	Affiln	Explore	Attach	Fear	Affiln	Explore
Stress	SP			.30	-.41*			.34[1]	-.56**
	TP			.49*	-.33[1]			.45*	-.47*
	Total[a]			.33*	-.30*			.33*	-.48**
Mother-Child Interaction									
Maternal Control	SP		-.31	.54*					-.33[1]
	TP		-.31[1]	-.02					-.13[1]
	Total[a]		-.24[1]	.28*					-.22[1]
Maturity Demands	SP	-.49*	-.50*	.63**		-.05		.17	-.45*
	TP	-.19	-.37[1]	.08		-.43*		.23	-.01
	Total[a]	-.29*	-.37**	.37*		-.25[1]		.24[1]	-.24[1]
Mother-Child Communication	SP	-.42*	-.23						
	TP	-.32[1]	-.45*						
	Total[a]	-.36*	-.27[1]						
Maternal Nurturance	SP						-.22		
	TP						-.36[1]		
	Total[a]						-.26[1]		
Child's Compliance	SP	-.21			.23				
	TP	-.34[1]			.39[1]				
	Total[a]	-.26[1]			.28*				

[a]For correlations with single and two parent families, family status was partialled in addition to child sex.

[1]$p < .10$ *$p < .05$. **$p < .01$.